

**RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
SHELLFISH GROWING AREA MONITORING PROGRAM**

STANDARD OPERATING PROCEDURES

I. Introduction

The Office of Water Resources is responsible for the classification and survey of the state's marine waters for molluscan shellfish harvesting. In order to maintain certification of these waters for the harvest of shellfish for direct human consumption, the Office of Water Resources conducts routine bacteriological monitoring and pollution source inventories of the state's shellfish growing waters. These responsibilities implement part of the State of Rhode Island's agreement with the United States Food and Drug Administration (FDA) National Shellfish Sanitation Program (NSSP) to maintain national health standards through the regulation of interstate shellfish industry.

The NSSP requires that the State maintain data and files that will provide evidence and demonstrate the effective administrative management of the shellfish sanitary control program. States shall keep records in a central file which will facilitate the FDA review of their shellfish sanitation programs and shall assist the FDA in making such reviews. When two or more State agencies are involved in the sanitary control of the shellfish industry, a clear statement of each agency's responsibilities should be developed in the form of a memorandum of understanding (MOU). Currently DEM's Office of Water Resources, Division of Fish and Wildlife, Division of Enforcement, and the Department of Health have established MOU's. Currently there is an MOU established by the Department of Health and DEM in 1978 stating Title 21, Chapter 21 of the General Laws of 1956 outlining the general responsibilities of the Departments. MOU's have also been established for Biotoxins response. There is a need for additional MOU's to be established for areas of shellfish relays, aquaculture and other program issues and responsibilities in the NSSP "Guide For The Control Of Molluscan Shellfish".

II. Classification of Growing Areas

According to the NSSP a growing area is defined as any site which supports or could support the propagation of shellfish stock by natural or artificial means. Growing areas shall be correctly designated with one of the following classifications:

A. Approved Areas

Growing areas may be designated as approved when the sanitary survey and marine biotoxin surveillance data indicate that fecal material, pathogenic microorganisms, poisonous and deleterious substances are not present in the area in dangerous concentrations.

B. Conditionally Approved Areas

Growing areas that are subject to intermittent microbiological pollution may be classified as conditionally approved. This option is voluntary and may be used when the suitability

of an area for harvesting shellfish for direct marketing is affected by a predictable pollution event. The pollution event may be predicated upon the attainment of an established performance standard by wastewater treatment facilities discharging effluent, directly or indirectly, into the area. In other cases, the sanitary quality of an area may be affected by seasonal population, non-point source pollution, or sporadic use of a dock or harbor facility. (All conditionally approved growing areas must have a written management plan of operation. These plans are located in the OWR shellfish growing area monitoring program.

C. Restricted Areas

An area may be classified as restricted when a sanitary survey indicates a limited degree of pollution. This option may arise when levels of fecal pollution or poisonous or deleterious substances are low enough to allow relaying.

D. Conditionally Restricted Areas

Growing areas that are subject to intermittent microbiological pollution may be classified as conditionally restricted. This option is voluntary and may be used when the suitability of an area for harvesting shellfish for relaying and depuration is affected by a predictable pollution event. The pollution event may be predicated upon the attainment of an established performance standard by wastewater treatment facilities discharging effluent, directly or indirectly, into the area. In other cases, the sanitary quality of an area may be affected by seasonal population, non-point source pollution, or sporadic use of a dock or harbor facility. The OWR operates conditional restricted areas to accommodate the Division of Fish and Wildlife's Shellfish Relay Transplant Program. These areas include portions of the Providence River, Warwick Cove, Apponaug Cove, Greenwich Cove, Wickford Harbor and Bristol Harbor.

E. Prohibited Area

A prohibited area is a growing area where there is no current sanitary survey or where the sanitary survey or other monitoring program data indicate that fecal material, pathogenic microorganisms, poisonous or deleterious substances, marine toxins, or radionuclides may reach this area in excessive concentration. The taking of shellfish for any human food purposes from such areas is prohibited.

Approved, conditionally approved, and restricted areas shall be correctly classified on the basis of sanitary or marine biotoxin survey information as applicable. All inshore state waters, including coastal, estuarine, and freshwater shellfish growing areas that have not been surveyed shall be designated as prohibited. Any upward revision of an area classification shall be based upon current and adequate information. A survey report, including a written analysis of the data justifying the upward reclassification, shall be made a part of the area file.

Rhode Island conducts bacteriological monitoring in 17 defined growing areas, three of which are operated as conditionally approved shellfish harvest areas.

These areas are defined as follows:

Growing Areas

- | | |
|--|---------------------------------------|
| 1. Upper Narragansett Bay | 10. Point Judith and Potter Ponds |
| 2. Barrington, Palmer, and Warren Rivers | 11. Quonochontaug and Winapaug Ponds |
| 3. East Middle Bay | 12. Ninigret and Green Hill Ponds |
| 4. Sakonnet River | 13. Little Narragansett Bay |
| 5. Kickemuit River | 14. Block Island |
| 6. East Passage | 15. Offshore Napatree to Point Judith |
| 7. West Passage | 16. Offshore Point Judith to Westport |
| 7.2 Pettaquanscutt River | 17. Offshore Block Island |
| 8. Greenwich Bay | 18. Seekonk River |
| 9. West Middle Bay | 19. Providence River |
| | 20. Mount Hope Bay |

1. Surface water samples are collected and analyzed by the Department of Health Laboratory for the presence of fecal coliform bacteria. DOH uses the procedures as proscribed in “**Standard Methods for the Examination of Water and Wastewater**” for the standard fecal coliform multiple fermentation test. The holding times and temperature are: hold source water, stream pollution, recreational water, and wastewater samples below 10° C during a maximum transport time of 6 (six) hours. Refrigerate these samples upon receipt in the laboratory and process within 2 (two) hours. When transport conditions necessitate delays in delivery of samples longer than 6 (six) hours, consider using either field laboratory facilities located at the site of collection or delayed incubation procedures.

III. Routine Bacterial Monitoring Program

A. Approved Areas

The Department uses systematic random sampling for bacteriological evaluation of the State’s approved shellfish growing waters. This requires that sample collection is scheduled sufficiently far in advance to support random collection with respect to environmental conditions. Compliance requires that, prior to implementation, the schedule for random sampling shall be documented in the master file for the growing area, and if conditions at the time of scheduled sample collection are believed to be hazardous to the safety of the individuals assigned to collect samples, sample collection shall be rescheduled at a later date as soon as practical. A minimum of 6 random samples shall be collected annually from each sample station in the growing area.

Water sample collection stations have been established to assure that the number and location of stations are adequate to effectively evaluate all pollution sources.

Sampled using systematic random sampling: # of stations

East Middle Bay

22

Sakonnet River	18
East Passage	28
West Passage	12
West Middle Bay	12
Potters and Point Judith	23
Quonochontaug and Winnapaug Pond	17
Ninigret and Green Hill Ponds	<u>22</u>
	154
	<u>x6</u>
Total annual samples collected from approved areas	924

- B. Remote Status:** is a designation that applies to shellfish growing areas that has no human habitation and is not impacted by actual or potential pollution sources.

	# of samples
♦ Remote offshore from Napatree to Point Judith	15
♦ Remote around Block Island	<u>6</u>
Total	21 x 2 (collected per year)= 42

C. Conditionally Approved Areas

Growing areas that are subject to intermittent microbiological pollution may be classified as conditionally approved. This option is voluntary and may be used when the suitability of an area for harvesting shellfish for direct marketing is affected by a predictable pollution event. The pollution event may be predicated upon the attainment of an established performance standard by wastewater treatment facilities discharging effluent, directly or indirectly, into the area. In other cases, the sanitary quality of an area may be affected by seasonal population, non-point source pollution, or sporadic use of a dock or harbor facility.

OWR currently manages four separate shellfish areas under the classification “Conditionally Approved”. These areas are:

	# of stations	# of samples per year	total/yr
♦ Upper Narragansett Bay Area “A”	6	12	72
♦ Upper Narragansett Bay Area “B”	3	12	36
♦ Greenwich Bay	19	12	228

♦ Mt. Hope Bay/Kickamuit River	26	12	<u>312</u>
	total samples collected annually		648

D. Prohibited Areas

A growing area shall be classified prohibited if there is no current sanitary survey or if the sanitary survey or other monitoring program data indicate that fecal material, pathogenic microorganisms, poisonous or deleterious substances, marine biotoxins, or radionuclides may reach the area in excessive concentrations. The taking of shellfish for any human food purposes from such areas shall be prohibited as with the other areas. Most growing areas in the approved and conditionally approved classification also have some prohibited area within their boundaries (note see attached “Shellfish Closure Area Maps”.)

Prohibited Areas:

	# of stations	# of sample runs per year	total/yr
Warren and Barrington Rivers	16	12	192
Little Narragansett Bay	17	2	34
Narrow River	4	4	16
Seekonk River	11	2	22
Providence River	12	2	24
			<u>288</u>
Projected annual amount of samples collected			1656

IV. Sanitary Surveys

The sanitary survey is a critical control point in the sanitary control of shellfish when identifying harvesting areas of acceptable sanitary quality. The conduct of a sanitary survey is of paramount importance in making the distinction between acceptable and unacceptable areas for distinguishing those estuarine waters suitable for direct harvest. A sanitary survey must be made of each growing area prior to its approval by OWR shellfish group as a source of shellfish or relaying operation. The sanitary surveys are updated annually and triennially (every three (3) years) and every 12 years the sanitary shoreline survey must be completely redone to include:

Annually – The annual sanitary shoreline survey requires a written annual update and field review of any changes in actual pollution sources that impact a growing area and the analytical results of the routine bacteriological sampling of the growing area.

Triennially – The triennial reevaluation sanitary shoreline survey requires a written report that addresses all pollution sources identified in a growing area. This includes all

newly identified, actual or potential sources. The effect of the sources on the growing area is evaluated and documented. As in the annual sanitary shoreline survey the analytical results of the routine bacteriological monitoring are also factored in.

Twelve year – The twelve (12) year sanitary shoreline survey requires a complete sanitary shoreline survey to include but not be limited to the following:

Minimum Requirements of the Sanitary Survey Report: *minimum requirements*

- I. Executive Summary
- II. Description of Growing Area
 - A. Location map or chart showing growing area
 - B. Description of area
 - C. History of growing area classification
 - 1. Date of last survey
 - 2. Previous classification(s) maps)
- III. Pollution Source Survey
 - A. Summary of Pollution Sources and Location, as presented in the NSSP's Guide For The Control of Molluscan Shellfish
 - 1. Map or chart showing the location of major sources of actual or potential pollution
 - 2. Table of sources of pollution cross-referenced to the map
 - B. Identification and evaluation of pollution sources
 - 1. Domestic wastes (discussion and maps)
 - 2. Stormwater
 - 3. Agricultural waste (farms, feedlots and slaughterhouse operations)
 - 4. Wildlife areas
 - 5. Industrial wastes
- IV. Hydrographic and Meteorological Characteristics
 - A. Tides
 - 1. Type
 - 2. Amplitude
 - B. Rainfall
 - 1. Amount

2. When
 3. Identify frequency of significant rainfalls
 - C. Winds – Seasonality and effects on pollution dispersion
 - D. River discharges
 1. Volumes
 2. Seasonal
 - E. Summary discussion concerning actual or potential effects of transport on pollution to the harvest area
- V. Water Quality Studies
- A. Map of sampling stations
 - B. Sampling plan and justification
 1. Adverse condition sampling
 2. Random sampling
 - C. Sample Data Analysis and Presentation – Tables containing the basic NSSP statistics (number of samples, median or geometric mean, and the respective variability facts)
 1. Station by station array – adverse condition or systematic random sampling
 2. Daily sampling results and number of samples collected for survey
 3. Overall compliance with NSSP criteria
 4. Classification of station
- VI. Interpretation of Data in Determining Area Classification – A discussion of how actual or potential pollution sources, wind, tide, rainfall, etc., affect or may affect water quality, that will address the following:
- A. Effects of meteorological and hydrographic conditions on bacterial loading
 - B. Variability in the data and causes
- VII. Conclusions
- A. Map or chart showing classification (closure lines, line separating various classifications)
 - B. Legal description
 - C. Management plan (if conditionally approval or conditionally restricted)

D. Recommendations for sanitary survey improvement

1. Monitoring schedule, station, etc.
2. Comments

Minimum Requirements for Performing Shoreline Surveys in Shellfish Growing Areas

1. **Survey Assignment**

- A. Each survey area is determined and assigned by the Office of Water Resources Shellfish Growing Area Monitoring Program. Each survey area is identified by a unique designation such as each growing area's boundary that is described in the survey. All survey data is identified by this designation which allows for tracking of all data developed in the survey. All shoreline survey data is documented and filed promptly.

2. **Examination of Individual Properties for Pollution Sources**

- A. The boundaries of the shoreline survey area are determined by an in-field investigation of the area topography and the proximity of individual properties to the growing area which identifies only those properties with the potential to impact growing area water quality. Once the boundaries of the shoreline survey have been determined, all businesses and residences are examined and all potential discharges of wastes (raw sewage; kitchen, laundry, or agricultural wastes, etc.) are be evaluated.
- B. The location of each property with a pollution source adversely impacting the growing area is provided.
- C. If the property has a pollution source adversely impacting a growing area, one (1) of the two (2) notations listed below is made concerning its impact on water quality.

1. **Direct Impact**

- a. A pollution source having direct impact is defined as any waste discharge, which has immediate impact on the growing area.
- b. An attempt should be made to quantify the volume of the discharge.

2. **Indirect Impact**

- a. A pollution source having an indirect impact is defined as any waste discharge, which reaches the growing area in a roundabout way.
- b. An attempt should be made to quantify the volume of the discharge.

- D. All sanitary, industrial, or agricultural pollution sources are located on a map of the survey area.
- E. All animal farms are evaluated. Evaluation shall include the number and type of animals.
- F. All marinas are evaluated. Marinas and mooring fields should correspond to their established closure zone or so called “Marina Proper”.
- G. Notations are made of any flocks of waterfowl and an estimation of their number given. Populations of wild animals such as deer and muskrat should be noted and where possible an estimation of their number given.
- H. Drainage ditches are evaluated.
 - Visual observation
 - Sampling/flow rates
 - Other available information collected by watersheds/TMDL group
- I. Any other potential source of pollution, which in the surveyor’s opinion might influence water quality, is noted.
- J. At the end of each shoreline survey the surveyor writes a summation. The surveyor provides a comprehensive map of the survey area identifying the location of each pollution source found.

V. Annual Review of Bacteriological Data

Once a year a statistical evaluation of the bacteriological data is performed. The results of this examination are compared with the National Standards as prescribed by the NSSP. The information is put in the form of an annual report. The report includes the results of the bacteriological monitoring of each sample station in each growing area and recommendations as to the classification of the growing area. A map is then produced showing the areas of Rhode Island marine waters that shellfish can be harvested from.

The text of the map is published in the Legal Section of the Providence Journal once a year (the week prior to Memorial Day weekend) as required by RI General Law 20-8.1-3, Investigation of Shellfish Grounds – Notice of Polluted Areas. Shellfish maps are also handed out to commercial shellfishermen with their annual license as well as recreational harvester on request.

VI. Closure Procedures

CONDITIONAL CLOSURE PRECIPITATION TRIGGERED CLOSURES

<u>AREA</u>	<u>0 – 0.49”</u>	<u>0.50” – 0.99”</u>	<u>1.00” – 2.99”</u>	<u>>3.0”</u>
-------------	------------------	----------------------	----------------------	-----------------

Area "A"	open	7 day closure	7 day closure	10 day closure
Area "B"	open	open	7 day closure	10 day closure
Greenwich Bay	open	7 day closure	7 day closure	7 day closure
Mt. Hope Bay/ Kickamuit River	open	7 day closure	7 day closure	7 day closure

The precipitation that initiates these shellfishing closures can be in the form of rain and/or snowmelt. All precipitation totals are based on the total accumulation during any consecutive 24 hour period (24 hr total). Closures must be implemented within 24 hours of achieving the trigger precipitation amount for Area "A", Area "B", and Greenwich Bay, and 12 hours for Mt. Hope Bay/Kickamuit River. The duration of all shellfish closures must be 7 full days (10 full days for "A" and "B" >3.0" rainfall/24 hrs) from the **ending** time of the precipitation event.

EXAMPLE:

A large, slow storm system passes through our area. By mid-afternoon we have received 0.50" of rain. At this point it is necessary to initiate a closure of Area "A", Greenwich Bay, and Mt. Hope Bay/Kickamuit River for seven days, beginning at sunrise the following A.M., and ending seven full days later. It continues raining overnight, and by the next morning we have received a total of 1.25" rain. At least 1.00" of this total amount was received within a consecutive 24 hour timeframe. Now it is necessary to initiate Greenwich Bay, and Mt. Hope Bay/Kickamuit River for another seven days, beginning at sunrise the following A.M. and ending seven full days later. The rain ends at the 1.25" mark. The result of this storm event scenario would result in Area "A", Greenwich Bay, and Mt. Hope Bay/Kickamuit River being closed for eight consecutive days spanning two closures, while Area "B" would be closed for seven consecutive days spanning one closure.

WWTF BYPASS TRIGGERED CLOSURES

<u>AREA</u>	<u>500,000 Gallon (0.5 MG) or greater Bypass Amount NBC-FP and/or NBC-BP</u>
Area "A"	7 day closure
Area "B"	open
Greenwich Bay	open
Mt. Hope Bay/ Kickamuit River	open

The bypass events that trigger the closure of Area "A" are generally rainfall related and are superseded by the precipitation closure. Often, however, there is a bypass event of greater than

0.5 MG that is associated with a rainfall event of less than 0.5" resulting in a closure of Area "A" only. Bypass closures are based on the total amount bypassed during any consecutive 24 hour period (24 hr total). The closure must be implemented within 24 hours of achieving the 0.5 MG amount. The duration of this closure must be 7 full days from the **ending** of the bypass event. This closure is dependent on the type of bypass, either raw sewage or primary effluent. Secondary effluent does not factor into the closure. There are occasions when as a result of pump station or treatment plant failure untreated or partially treated sewage is discharged. These events may or may not be associated with rain events. A discharge of 0.5 MG or greater of untreated or partially treated sewage will likewise result in a 7 day closure of Area "A".

EXAMPLE:

We receive a sudden and intense short duration thunder storm that drops 0.45" of rain in 1 hour. The skies then clear and we receive no more rain. We do not receive the minimum 0.50"/24 hrs rainfall amount to trigger a precipitation closure. Meanwhile, the intensity of the quick storm exceeds the capacity of the Fields Point and Bucklin Point Treatment Facilities to handle their stormwater intake and they each bypass 0.4 MG of primary effluent. Taken individually, the 0.4 MG amounts would not be enough to initiate a closure of Area "A", but since we are considering the **total** amount bypassed, then:

$$0.4 \text{ MG (Bucklin Point)} + 0.4 \text{ MG (Fields Point)} = 0.8 \text{ MG Total}$$

This amount does exceed the 0.5 MG minimum. We would need to implement a closure of Area "A" for seven days from the latest ending time of the bypass events. All the other conditional areas would remain open.

Initiating Closures

Weekend Closures

As part of OWR's management of conditional areas, weekend coverage is required. The current practice is for an individual in the watersheds section of OWR to call and check for messages on the Department's Wastewater Facility By-pass line. All wastewater treatment facilities are required to report any by-passes or process failures such as loss of disinfection, when and if such an event occurs.

The person on-call also places a call to the US National Weather Service in Taunton, Mass., specifies Providence and requests precipitation amounts. When any of the amounts exceed the closure criteria of conditionally approved shellfish growing areas, a harvesting closure is called in. These closures are based on the management plan that has been developed for each area.

Emergency Closures

These shellfish closures are not routine and are in response to unpredictable events, such as excess rainfall, flooding, hurricanes, oil spills, or any unpredicted pollution event that may threaten the quality of shellfish making them unsafe or potentially unsafe for human consumption.

When it is necessary to enact an emergency closure, the program supervisor shall notify the Chief or Assistant Director of the Office of Water Resources through the appropriate chain of command. If that can not be accomplished, the program supervisor shall notify the Director's Office, first trying to notify the Associate Director and if necessary the Director. Under no circumstances should this information be placed to someone in a message format.

Closures for Seasonally Approved Areas

These areas are closed primarily in the summer months when anchorages of mooring fields are being used by boats. Seasonal closures occur in areas such as Block Island, Jamestown, Bristol and Prudence Island.

The following closure checklist describes the agencies, and contact people who are notified by the Office of Water Resources staff when a shellfishing closure is initiated:

CLOSURE CHECKLIST
CONDITIONALLY APPROVED AREA
UPPER NARRAGANSETT BAY, GREENWICH BAY, MT. HOPE BAY, AND KICKAMUIT RIVER

Date: _____

Prepared by: _____

Date Signed: _____

TYPE OF CLOSURE(S): _____

- _____ (OMCLSRE1.DOC) – Conditional Area “A”.
- _____ (OMCLSRE2.DOC) – Conditional Area “A”, and Greenwich Bay.
- _____ (OMCLSRE3.DOC) – Conditional Area “A” and “B”, and Greenwich Bay.
- _____ (OMCLSRE4.DOC) – Emergency Closure, Northern Narragansett Bay.
- _____ (OMCLSRE5.DOC) – Greenwich Bay only.
- _____ (OMCLSRE6.DOC) – Mt. Hope Bay and Kickamuit River.
- _____ (OMCLSRE7.DOC) – Emergency Closure, all water of the state.

1. Give reason for recommended closure of bay (include dates of rain/bypass events):

Rainfall amount: _____ (inches) Bypass amounts: NBC-FP _____ (mgd) NBC-BP _____ (mgd)

Bay Closure **begins at sunrise (noon)** _____ and **ends at sunrise** _____

2. **Call Division of Enforcement** Dispatch Ext.2284, 3070, or 3071
 notify as to type of closure and dates
3. **Call Providence Journal** for almanac written text:
 Cecilia Arnold.....277-7312, or 7310
4. **Call Providence Journal**
 Mick Cockran - Leave message on answering machine
 277-7260
5. **Call weather data** for almanac section map.....1-800-366-4934
 contact Todd Buckley or leave message on answering machine
6. **Maureen Casey**, Office of Technical and Customer Assistance.....222-4700, Ext. 7307
7. **Call WPRO** (and other radio stations if necessary).....433-2200
8. **Call Division of Fish and Wildlife**.....1-401-789-3094
9. **Call Bristol Phoenix** (Linda Rego) Ext. 107.....253-6000
10. **Give secretary this copy**, when completed, of this checklist for processing a hard copy closure notice for signature.
11. **Update closure record** and black binder. Change dates on board in main office.
12. **Save and File:**
- A. signed formal notice and copy
 - B. this closure checklist
13. Fax a copy of this closure to Division of Enforcement (optional).....6823

**WEEKEND CLOSURE CHECKLIST – CONDITIONALLY APPROVED AREAS
UPPER NARRAGANSETT BAY, BARRINGTON, PALMER, AND WARREN RIVERS,
GREENWICH BAY, MT. HOPE BAY, and KICKAMUIT RIVER**

Date: _____

Prepared By: _____

Type of Closure: **SEE BACK OF THIS SHEET!**

1. Give reason for recommended closure of bay:

-
- A. Rainfall data Taunton Weather Station (specify Providence)(508) 823-2228
B. Rainfall data Recorded Message(508) 822-0634
2. Check with message system to see if bypass reported.....222-4777
then 7213#, then 52755# and messages will be played back.
- A. If bypass reported, call plant supervisor for Total amount: NBC Fields Point222-6781
NBC Bucklin Point.....434-6350
B. For failure at East Greenwich WWTF, call E. G. Police884-2244
C. For failure at Taunton WWTF,(508) 823-3582
D. For failure at Somerset WWTF,(508) 646-2838
E. For failure at Fall River WWTF,(508) 324-2320
F. For failure at Cranston WWTF,467-7210
G. For failure at East Providence WWTF,433-6376
H. For failure at Warwick WWTF,739-4949
I. For failure at West Warwick WWTF,822-9228
- **IF CLOSURE IS DUE TO BYPASS ONLY, OR QUESTIONABLE IN ANY WAY, GET AUTHORIZATION FROM BELOW:**
- A. Joe Migliore – home245-2896
B. Jon Speaker – home333-8277
C. Tom Iarossi - home828-4716
D. Greg Goblick - home751-9634
3. Closure Information – See Below
- A. Type of Closure (s).....
B. Date Closure Begins (sunrise)
C. Date Closure Ends (sunrise)
D. Date Notice Signed
4. Call Division of Enforcement222-2284, 222-3070, or 222-3071
A. Notify as to Type of Closure
B. Give Dates of Closure
5. Call Providence Journal (Mick Cockran)277-7260
6. Call Weather Data1-800-366-4934
leave closure message on answering machine for Almanac Map. Give map closure # and
name of area (s) to be closed.
7. Call Providence Journal (City Desk) anytime,277-7303
leave closure message with reporter for Almanac Text (file name “SHELLBAN”)
8. **Save this checklist and attach to regular closure checklist when completed next work day!**

VII. Cooperative Efforts

Biotoxin:

At the present time, DEM OWR has the responsibility to close impacted areas once notified by the DOH that there are levels of Biotoxin present in shellfish to warrant a closure.

Shellfish Relay:

DEM Fish and Wildlife checks with the OWR and DOH before a shellfish transplant may take place. The OWR approved areas for relay that have current sanitary surveys and have a conditional restricted shellfish classification. The DOH does a baseline shellfish meat analysis.

Aquaculture:

The OWR reviews and comments on the growing water classification and quality for proposed aquaculture leases to CRMC and DEM Fish and Wildlife.

The requirements of the National Shellfish Sanitation Program change and so will the duties of the respective departments involved in carrying out their mission. It is recommended that the information in this SOP be reviewed and updated on a regular basis to assure consistency with the evolving NSSPs "Guide for the Control of Molluscan Shellfish".

VIII. Boats

The shellfish section oversees the operation and maintenance of three boats:

- A 23 foot Pilothouse Ocean Scout powered by a 150 hp out-board motor. This boat is designated for monitoring use in open water. It is equipped with dual batteries and has two 12 volt DC plug connectors for lap top computers, fluorometers and other related monitoring equipment. It has a 100 gallon gas tank and is equipped to run at night. This boat has a trailer and should be towed by OWR's 1834, a full size 4x4 Chevy Blazer.
- A 19 foot Center Console Ocean Scout powered by a 100 hp outboard motor. This boat has a fold down windshield to allow it to pass under bridges i.e., Barrington River and Palmer River. The 19 foot Ocean Scout can be used throughout the bay during the spring, summer, and fall. It is not recommended for open water work in the winter because it does not offer any protection from the weather for its crew.
- A 16 foot Aluminum Flat Bottom Jon boat powered by a 25 hp Johnson commercial outboard motor has been recently added to the Water Resources fleet. This boat can be operated in shallow water to about 1.5 inches of water. The recommended work areas for this boat is the coastal shore ponds, Warren and Barrington Rivers, etc.